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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LIANG, GWEN

ART UNIT PAPER NUMBER

2172

DATE MAILED: 02/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.	Applicant(s)	
09/692,433	TIFFT, WILLIAM WATSON	
Examiner	Art Unit	
GWEN LIANG	2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 January 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 23-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other:

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Group I including claims 1-22 in Paper No. 5 is acknowledged
2. Claims 23-39 of Group II are withdrawn from further consideration as being drawn to a nonelected invention.

### *Claim Objections*

3. Claim 2, 3, 5-7 13, 14, 16-18 are objected to because of the following informalities:

With regard to claims 2 and 13, the claim language contains grammatical errors because the two verbs "corresponds" and "is" appear in the "wherein" clause without any conjunctive expression.

With regard to claims 3, 5-7, 14, 16-18, the claim language contains grammatical errors because the two verbs "corresponds" and "retrieves" appear in the "wherein" clause without any conjunctive expression.

Appropriate correction is required to be made to the aforementioned and any other informalities existing in the claims.

***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 12-21 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

With regard to claim 12, "An enterprise system" is not tangibly embodied in a computer-readable medium, and hence non-statutory.

With regard to claims 13-21, "The system" is not tangibly embodied in a computer-readable medium, and hence non-statutory.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 5-7, 12, 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 12 recite the limitation "the efficiency". There is insufficient antecedent basis for this limitation in these claims.

Claims 5-7 and 16-18 recite the limitation "the number of instances". There is insufficient antecedent basis for this limitation in these claims. The limitation "the number of

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instances” does not exist in the parent claims corresponding to the aforementioned dependent claims.

Claim 15 recites the limitation "the amount of time". There is insufficient antecedent basis for this limitation in these claims. The limitation "the amount of time" does not exist in the parent claims corresponding to the aforementioned dependent claim.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neal et al., “Neal” (U.S. Patent No. 6,324,534), further in view of Yamazaki et al., “Yamazaki” (U.S. Patent No. 5,204,939), and further in view of Megiddo et al., “Megiddo” (U.S. Patent No. 6,182,070).

With respect to claim 1, Neal teaches a method comprising the steps of:

implementing a plurality of search rules that include one or more data elements, wherein the combination of data elements in each rule is configured to identify a target record (See for example: Abstract, “The system accepts search terms from a user, and then executes a sequence of search strategies on subsets of the database which may include a proximity search, a word count search, and a fuzzy logic search.”; col. 3 line 63 – col. 4 line 2, “According to the present invention, a method of selecting data records in a catalog database comprises the following steps:

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inputting search terms to a user interface; testing the search terms against a sequence of data sets using search algorithms designated for each data set; and terminating the sequence of search algorithms when at least one database record satisfied the search criteria.”); and

retrieving a plurality of records identified by the search rules as possible matches to the target record (See for example: Abstract, “The user can page through the list of displayed matches”);

However Neal does not explicitly disclose a method comprising: arranging the search rules ...; executing the search rules according to the rank order ...; collecting a plurality of statistical values ...; and adjusting the rank order ...

Yamazaki discloses a method comprising:

arranging the search rules in a rank order of execution; and executing the search rules according to the rank order to retrieve the target record; (See for example: Abstract, “The knowledge source blocks contain priority sequence tables in which the sequence of execution of the rules is arranged and can be externally controlled.”; col. 1 lines 7-13, “The present invention relates to a rule base processing system wherein rules are described in a rule base by a rule description language, and more particularly, to a rule base processing system in which rules in the rule base are provided in knowledge source blocks of rules between which the sequence of priority for execution can be changed.”; col. 12 lines 15-22, “On the other hand, if the evaluation sequence data does not indicate the rule number sequence, but rather indicates the application condition, the evaluation sequence control means references the rule number sequence already stored, extracts rules from the rule base in accordance with the sequence thereof and arranges the rules in the execution sequence.”);

collecting a plurality of statistical values related to the performance of each search rule executed in attempt to locate the target record (See for example: col. 4 line 62 – col. 5 line 2, wherein each case produces a numeral value, which illustrates the collection of statistical values related to the performance of each search rule; col. 5 lines 24-44, wherein evaluation is carried out by the procedure evaluation section for each detail rule.); and

adjusting the rank order of the search rules (See for example: col. 1 lines 1-13, wherein the sequence of priority for execution can be changed; col. 7 lines 26-29, “Instead, they are executed and evaluated in accordance with the sequence defined in the relevant table 9 which changes the priority depending on the rule number arrangement.”.)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a method of ranking search rules as disclosed by Yamazaki into the method of implementing search rules as taught by Neal in order to allow changing the evaluation sequence of the rules without changing the rule base itself to improve rule base development efficiency (See for example: col. 2 lines 62-65) One of ordinary skill in the art would be motivated to make the aforementioned combination with reasonable expectation of success.

However the combination of Neal and Yamazaki does not explicitly disclose a method of adjusting the rank order upon analysis of the collected statistics ...

Megiddo discloses a method of adjusting the rank order of the search rules upon analysis of the collected statistics (See for example: col. 3 lines 31-36, wherein the system permits rules to be ranked based on statistical significance.).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a method of adjusting the rank order of the search rules upon analysis of the collected statistics as disclosed by Megiddo into the method of adjusting the rank order of the search rules as taught in the combination of Neal and Yamazaki to permit the user of the system to view the most statistically significant association rules first (See for example: Abstract). One of ordinary skill in the art would be motivated to make the aforementioned combination with reasonable expectation of success.

Claim 2 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Megiddo teaches a method wherein one of the collected statistical values corresponds to number of instances a search rule is executed to search for the target record (See for example: col. 9 line 60 – col. 10-62).

Claim 3 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Megiddo teaches a method wherein one of the collected statistical values corresponds to number of instances a search rule retrieves one or more records as possible matches to the target record (See for example: col. 9 line 60 – col. 10-62).

Claim 4 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Megiddo teaches a method wherein one of the collected statistical values corresponds to an elapsed time value equivalent to the amount of time spent executing a search rule to retrieve a record (See for example: col. 2 lines 46-60).

Claim 5 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Megiddo teaches a method wherein one of the collected statistical values corresponds to the



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number of instances a search rule retrieves a record previously retrieved by a previously executed search rule (See for example: col. 9 line 60 – col. 10-62).

Claim 6 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Megiddo teaches a method wherein one of the collected statistical values corresponds to the number of instances a search rule retrieves a record that was not retrieved by a previously executed search rule (See for example: col. 9 line 60 – col. 10-62).

Claim 7 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Megiddo teaches a method wherein one of the collected statistical values corresponds to the number of instances a search rule retrieves a plurality of records, wherein the plurality of records are subsequently determined to correspond to the target record (See for example: col. 9 line 60 – col. 10-62).

Claim 8 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Megiddo teaches a method wherein one of the collected statistical values corresponds to the number of records of the plurality of retrieved records determined not to be the target record (See for example: col. 3 lines 26-40; col. 7 lines 10-29).

Claim 9 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Megiddo teaches a method wherein the enterprise system determines the efficiency for each search rule according to the collected statistics for the search rule, and wherein the rank order of the search rules are arranged in descending order by efficiency (See for example: col. 3 lines 42-57; col. 6 lines 58 – col. 7 line 9; col. 7 lines 30-52).

Claim 10 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Megiddo teaches a method wherein a user of the enterprise system determines the efficiency

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based upon the collected statistics and arranges the rank order of the search rules according to the determined efficiency (See for example: col. 3 lines 42-57; col. 6 lines 58 – col. 7 line 9).

Claim 11 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Megiddo teaches a method wherein the enterprise system and search rules are executed in a computer (See for example: col. 3 lines 42-45).

Claims 12-22 are rejected on grounds corresponding to the reasons given above for claims 1-11.

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bhargava et al., U.S. Patent 5,832,477: a method for reordering complex SQL queries containing joins, outer and full outer joins.

Karch, U.S. Patent 5,899,991: an access and control system for use in a computer network provides for a rule making algorithm which models a database in advance and prevents queries which could result in exceptional processing requirements.

Finance et al., "A rule-based query optimizer with multiple search strategies": a rule-based query optimizer through the user of a uniform high-level rule language to model both query rewriting and planning, as well as search strategies.

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### **Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GWEN LIANG whose telephone number is 703-305-3985. The examiner can normally be reached on 9:00 A.M. - 5:30 P.M. Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KIM VU can be reached on (703) 305-4393. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

G.L.  
February 7, 2003

  
KIM VU  
SUPERVISORY PATENT EXAMINER  
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